# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  Can C. Aysan et al.  |  Examiner: Donald L. Mills

Serial No. 10/005,328  |  Art Unit: 2616

Filed: 12/07/2001

For:  **TUNNELING SCHEME OPTIMIZED FOR USE IN VIRTUAL PRIVATE NETWORKS**

Mail Stop Appeal Brief – Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA  22313-1450

Sir:

An **APPEAL BRIEF** is filed herewith.  The Appellants enclose a payment in the amount of $510.00 as required by 37 C.F.R. § 1.17(c).  If any additional fees are required in association with this appeal brief, the Director is hereby authorized to charge them to Deposit Account 50-1732, and consider this a petition therefor.

## APPEAL BRIEF

### (1) REAL PARTY IN INTEREST

The real party in interest is the assignee of record, i.e., Nortel Networks Limited of 2351 Boulevard Alfred-Nobel, St. Laurent, Quebec Canada H4S 2A9, which is wholly owned by Nortel Networks Corporation, a Canadian corporation.

### (2) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences to the best of the Appellants' knowledge.

### (3) STATUS OF CLAIMS

Claims 1-6, 8, and 9 were rejected with the rejection made final on June 13, 2007.

Claims 7 and 10-16 were previously cancelled.

Claims 1-6, 8, and 9 are pending and are the subject of this appeal.

### (4) STATUS OF AMENDMENTS

All amendments have been entered to the best of the Appellants' knowledge.  No amendments have been filed after the Final Office Action mailed June 13, 2007.

## (5) SUMMARY OF CLAIMED SUBJECT MATTER

In the following summary, the Appellants have noted where in the Specification certain subject matter exists. The Appellants wish to point out that these citations are for demonstrative purposes only and that the Specification may include additional discussion of the various elements, citations to which are not pointed out below. Thus, the noted citations are in no way intended to limit the scope of the pending claims.

Claim 1 recites a method of forwarding a packet (Figure 7A, element 700A) to a destination comprising:

examining a header (Figure 7A, element 702A) of said packet to determine a private destination address (Specification, p. 12, ll. 29-31; see also Figure 7A, element 714 and Figure 8, step 804);

determining a private address of a private remote sub-endpoint (Figure 4, element 412) of a tunnel (Figure 2, element 102), said private sub-endpoint being associated with said private destination address (Specification, p. 12, l. 31 through p. 13, l. 6; see also Figure 8, steps 806 and 808):

determining a public address of a public remote sub-endpoint (Specification, p. 13, ll. 6-22; see also Figure 4, element 414x and Figure 8, step 810) of said tunnel;

encapsulating said packet, resulting in an encapsulated packet (Figure 7B, element 700B), to indicate a public address (Figure 7B, element 716) of a public local sub-endpoint (Figure 3, element 314A) of said tunnel as a source address and said public address (Figure 7B, element 718) of said public remote sub-endpoint of said tunnel as a destination address (Specification, p. 13, ll. 23-29; see also Figure 8, step 812); and

forwarding said encapsulated packet to a node (Figure 4, elements 204N and 416) in a carrier network (Specification, p. 14, ll. 4-6; see also Figure 2, element 102 and Figure 8, step 814).

Claim 2, which depends from claim 1, recites that the tunnel is a point to a multipoint tunnel (Figure 2, element 216M and 216N).

Claim 8 recites a carrier router (Figure 2, element 216M) comprising:

a private network interface (Specification, p. 7, ll. 18-21 and p. 11, ll. 21-25; see also Figure 3, elements 310 and 312);

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a public network interface (Specification, p. 7, ll. 20-23 and p. 11, ll. 21-25; see also Figure 3, elements 314A);

a processor (Specification, p. 8, ll. 12-18; see also Figure 5, element 502) operable to:

receive a packet (Specification, p. 8, ll. 12-18; see also Figure 7A, element 700A) at said private network interface (Specification, p. 12, ll. 26-29; see also Figure 8, step 802);

examine a header (Figure 7A, element 702A) of said packet to determine a private destination address (Specification, p. 12, ll. 29-31; see also Figure 7A, element 714 and Figure 8, step 804);

determine a private address of a private remote sub-endpoint (Figure 4, element 412) of a tunnel (Figure 2, element 102), said private sub end-point being associated with said private destination address (Specification, p. 12, l. 31 through p. 13, l. 6; see also Figure 8, steps 806 and 808);

determine a public address of a public remote sub-endpoint (Specification, p. 13, ll. 6-22; see also Figure 4, element 414x and Figure 8, step 810) of said tunnel;

encapsulate said packet, resulting in an encapsulated packet (Figure 7B, element 700B), to indicate a public address (Figure 7B, element 716) of a public local sub-endpoint (Figure 3, element 314A) of said tunnel as a source address and said public address (Figure 7B, element 718) of said public remote sub-endpoint of said tunnel as a destination address (Specification, p. 13, ll. 23-29; see also Figure 8, step 812); and

forward said encapsulated packet to a node (Figure 4, elements 204N and 416) in a public network (Figure 2, element 102) via said public network interface (Specification, p. 14, ll. 4-6; see also Figure 8, step 814).

Claim 9 recites a computer readable medium containing computer executable instructions which, when performed by a processor (Figure 5, element 502) in a carrier router (Figure 2, element 216M), cause the processor to (Specification, p. 8, ll. 12-18):

examine a header (Figure 7A, element 702A) of a packet to determine a private destination address (Specification, p. 12, ll. 29-31; see also Figure 7A, element 714 and Figure 8, step 804);

determine a private address of a private remote sub-endpoint (Figure 4, element 412) of a tunnel (Figure 2, element 102), said private sub-endpoint being associated with said private

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destination address (Specification, p. 12, l. 31 through p. 13, l. 6; see also Figure 8, steps 806 and 808);

determine a public address of a public remote sub-endpoint (Specification, p. 13, ll. 6-22; see also Figure 4, element 414X and Figure 8, step 810) of said tunnel;

encapsulate said packet, resulting in an encapsulated packet (Figure 7B, element 700B), to indicate a public address (Figure 7B, element 716) of a public local sub-endpoint (Figure 3, element 314A) of said tunnel as a source address and said public address of said public remote sub-endpoint of said tunnel as a destination address (Specification, p. 13, ll. 23-29; see also Figure 8, step 812); and

forward said encapsulated packet to a node (Figure 4, elements 204N and 416) in a carrier network (Specification, p. 14, ll. 4-6; see also Figure 2, element 102 and Figure 8, step 814).

## (6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-6, 8, and 9 were properly rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,496,867 B1 to *Beser et al.* (hereinafter *"Beser"*). The Appellants respectfully traverse the rejection.

## (7) ARGUMENT

### A. Introduction

For the Patent Office to prove anticipation, the Patent Office must show where each and every element of the claim is taught in the reference. Further, the elements of the reference must be arranged as claimed.[1] Anticipation is a strict standard, and the Patent Office has not satisfied its burden in the present application. In particular, the Patent Office has not shown where the prior art discloses the feature of, in a method of forwarding a packet to a destination, the operation of determining two separate private addresses, namely a private destination address and a private address of a private remote sub-endpoint which is associated with the private destination address. Moreover, the Patent Office has not shown where the prior art discloses the feature of encapsulating a packet such that a resulting packet indicates a public address of a public local sub-endpoint of a tunnel as a source address and a public address of a public remote

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[1] MPEP § 2131.

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sub-endpoint of a tunnel as a destination address where the packet is being sent to a private address

## B. Summary of U.S. Patent No. 6,496,867 B1 to *Beser*

*Beser* discloses initiating a tunneling association between an originating end of a tunneling association and a terminating end of the tunneling association.[2] In particular, *Beser* discloses the transfer of a packet from an originating network device 24 to a terminating network device 26.[3] *Beser* discloses that a first network device 14 receives a packet from the originating network device 24 which is destined for the terminating network device 26.[4] According to *Beser*, when the originating network device 24 receives the packet, the first network device 14 determines that a private network address associated with terminating network device 26 is associated with public network address of a second network device 16.[5] Thus, *Beser*, at most, discloses determining one private network address. However, *Beser* does not disclose determining two separate private addresses, such as a private destination address and a private address of a private remote sub-endpoint which is associated with the private destination address, as recited in the claims. Moreover, *Beser* does not disclose encapsulating a packet such that a resulting packet indicates a public address of a public local sub-endpoint of a tunnel as a source address and a public address of a public remote sub-endpoint of a tunnel as a destination address where the packet is being sent to a private address.

## C. Legal Standards For Establishing Anticipation

Section 102 of the Patent Act provides the statutory basis for an anticipation rejection and states *inter alia*:

> A person shall be entitled to a patent unless
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> (e) the invention was described in - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the

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[2] *See Beser*, col. 2, lines 47-50.
[3] *See Beser*, col. 22, lines 4-6.
[4] *See Beser*, col. 22, lines 8-13.
[5] *See Beser*, col. 22, lines 13-18.

effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language. . . .

The Federal Circuit's test for anticipation has been set forth numerous times. "It is axiomatic that for prior art to anticipate under 102 it has to meet every element of the claimed invention."[6] This standard has been reinforced. "To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter."[7] Further, "a finding of anticipation requires that the publication describe all of the elements of the claims, <u>arranged as in the patented device</u>."[8]

### F.  Claims 1-6, 8, and 9 Are Not Anticipated by *Beser*

Claims 1-6, 8, and 9 were rejected under 35 U.S.C. § 102(e) as being anticipated by *Beser*. The Appellants respectfully traverse the rejection.

#### 1.  *Beser* Does Not Disclose Determining Two Separate Private Addresses, Namely, A Private Destination Address And A Private Address Of A Private Remote Sub-endpoint Which Is Associated With The Private Destination Address

According to Chapter 2131 of the MPEP, in order to anticipate a claim under 35 U.S.C. § 102, "the reference must teach every element of the claim." The Appellants respectfully submit that *Beser* does not disclose each and every element recited in claims 1-6, 8, and 9. Accordingly, *Beser* cannot anticipate these claims.

Claim 1 recites a method of forwarding a packet to a destination comprising, among other features, determining a private destination address and determining "a private address of a private remote sub-endpoint of a tunnel, said private sub-endpoint being associated with said private destination address." Claims 8 and 9 include similar features. The Appellants submit that *Beser* does not disclose the feature of determining two separate private addresses such as a private destination address and a private address of a private remote sub-endpoint which is associated with the private destination address. In maintaining the rejection, the Patent Office

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[6] *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379 (Fed. Cir. 1986).

[7] *PPG Indus. Inc. v. Guardian Indus. Corp.*, 75 F.3d 1558, 1577 (Fed. Cir. 1996) (citations omitted).

[8] *C.R. Bard Inc. v. M3 Sys. Inc.*, 157 F.3d 1340, 1349 (Fed. Cir. 1998) (emphasis added and citations omitted).

states that *Beser* discloses this feature in column 22, lines 6-22.[9] The Appellants respectfully disagree. At most, *Beser* discloses that a first network device 14 receives a packet from an originating network device 24 destined for a terminating network device 26.[10] Upon receipt, the first network device 14 determines that a private network address associated with the terminating network device 26 is associated with a public network address of a second network device 16.[11] Thus, *Beser* only discloses determining one private address. Nowhere does *Beser* disclose that, in addition to determining the private network address associated with the terminating network device 26, determining a private address of a private remote sub-endpoint which is associated with the private network address.

### 2. *Beser* Does Not Disclose Encapsulating A Packet Such That A Resulting Packet Indicates A Public Address Of A Public Local Sub-Endpoint Of A Tunnel As A Source Address And A Public Address Of A Public Remote Sub-Endpoint Of A Tunnel As A Destination Address Where The Packet Is Being Sent To A Private Address

Furthermore, claim 1 recites encapsulating a packet, which is being sent to a private address, "resulting in an encapsulated packet, to indicate a public address of a public local sub-endpoint of said tunnel as a source address and said public address of said public remote sub-endpoint of said tunnel as a destination address." Claims 8 and 9 include similar features. The Appellants respectfully submit that *Beser* does not disclose encapsulating a packet such that the resulting packet indicates a public address of a public local sub-endpoint of a tunnel as a source address and a public address of a public remote sub-endpoint of a tunnel as a destination address where the packet is being sent to a private address. In maintaining the rejection, the Patent Office states that *Beser* discloses this feature at column 22, lines 6-22.[12] The Appellants respectfully disagree. At most, *Beser* discloses figuring out where to send a packet by translating a private network address to a public network address.[13] However, *Beser* does not disclose encapsulating a packet such that the packet indicates that a local address of a public endpoint of a tunnel is a source address. Furthermore, *Beser* does not disclose encapsulating a packet being sent to a private destination address such that the packet indicates that a public address of a

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[9] *See* Final Office Action mailed June 13, 2007, pages 2 and 3.
[10] *See Beser*, col. 22, lines 8-13.
[11] *See Beser*, col. 22, lines 13-18.
[12] *See* Office Action mailed January 5, 2007, pages 2 and 3.
[13] *See Beser*, col. 22, ll. 18-22.

public remote sub-endpoint of a tunnel is a destination address. Accordingly, claims 1, 8, and 9 are patentable over *Beser*. Likewise, claims 3-6, which ultimately depend from claim 1, are patentable for at least the same reasons along with the novel features recited therein.

### 3. *Beser* Does Not Disclose That A Tunnel Is A Point To A Multipoint Tunnel

Claim 2 recites that the tunnel recited in claim 1 "is a point to a multipoint tunnel." The Appellants respectfully submit that *Beser* does not disclose that a tunnel is a point to a multipoint tunnel. In maintaining the rejection, the Patent Office states that Figure 1 of *Beser* discloses this feature.[14] The Appellants respectfully disagree. While Figure 1 of *Beser* does disclose a first network device 14 in communication with a second network device 16, contrary to what is asserted by the Patent Office, *Beser* does not disclose a multipoint tunnel, much less a tunnel which is a point to a multipoint tunnel. As such, for this reason, in addition to the reasons noted above, claim 2 is patentable over the cited reference.

### I. Conclusion

As set forth above, *Beser* does not disclose or suggest determining two separate private addresses, a private destination address and a private address of a private remote sub-endpoint which is associated with the private destination address. Moreover, *Beser* does not disclose encapsulating a packet such that a resulting packet indicates a public address of a public local sub-endpoint of a tunnel as a source address and a public address of a public remote sub-endpoint of a tunnel as a destination address where the packet is being sent to a private address. As such, the Appellants request that the Board reverse the Examiner and instruct the Examiner to allow the claims.

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[14] *See* Office Action mailed January 5, 2007, page 3.

Respectfully submitted,

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## (8) CLAIMS APPENDIX

1.      A method of forwarding a packet to a destination comprising:

examining a header of said packet to determine a private destination address;

determining a private address of a private remote sub-endpoint of a tunnel, said private sub-endpoint being associated with said private destination address:

determining a public address of a public remote sub-endpoint of said tunnel;

encapsulating said packet, resulting in an encapsulated packet, to indicate a public address of a public local sub-endpoint of said tunnel as a source address and said public address of said public remote sub-endpoint of said tunnel as a destination address; and

forwarding said encapsulated packet to a node in a carrier network.


2.      The method of claim 1 wherein said tunnel is a point to a multipoint tunnel.


3.      The method of claim 1 wherein said determining said private address of said private remote sub-endpoint of said tunnel comprises consulting a routing table to discover an address associated with said private destination address of said packet.


4.      The method of claim 1 wherein said determining said public address of said public remote sub-endpoint of said tunnel comprises consulting a static address resolution protocol table to discover an address associated with said private address of said private remote sub-endpoint of said tunnel.


5.      The method of claim 1 further comprising determining a private address of a first local sub-endpoint of said tunnel.


6.      The method of claim 5 wherein said determining said private address of said first local sub-endpoint of said tunnel comprises consulting a forwarding table to discover an address associated with said private address of said private remote sub-endpoint of said tunnel.


7.      (Cancelled).


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8.    A carrier router comprising:

a private network interface;

a public network interface;

a processor operable to:

receive a packet at said private network interface;

examine a header of said packet to determine a private destination address;

determine a private address of a private remote sub-endpoint of a tunnel, said private sub end-point being associated with said private destination address;

determine a public address of a public remote sub-endpoint of said tunnel;

encapsulate said packet, resulting in an encapsulated packet, to indicate a public address of a public local sub-endpoint of said tunnel as a source address and said public address of said public remote sub-endpoint of said tunnel as a destination address; and

forward said encapsulated packet to a node in a public network via said public network interface.


9.    A computer readable medium containing computer executable instructions which, when performed by a processor in a carrier router, cause the processor to:

examine a header of a packet to determine a private destination address;

determine a private address of a private remote sub-endpoint of a tunnel, said private sub-endpoint being associated with said private destination address;

determine a public address of a public remote sub-endpoint of said tunnel;

encapsulate said packet, resulting in an encapsulated packet, to indicate a public address of a public local sub-endpoint of said tunnel as a source address and said public address of said public remote sub-endpoint of said tunnel as a destination address; and

forward said encapsulated packet to a node in a carrier network.


10-16. (Cancelled).

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## (9) EVIDENCE APPENDIX

The Appellants rely on no evidence, thus this appendix is not applicable.

## (10) RELATED PROCEEDINGS APPENDIX

As there are no related proceedings, this appendix is not applicable.